middle by a small semicircular depression, the basal portion porrect, the apical portion strongly deflexed; mandibles bidentate at the apex, the upper tooth the longest. Thorax minutely punctured, the notauli deep and finely crenulate; scutellum with a rather shallow, transverse, closely longitudinally striated groove at the base. Median segment coarsely rugose; areola rather ill-defined, long and narrow; petiolar area short. Abdomen elongate, narrow; the three basal segments longer than broad and punctured-rugulose; the first tergite longitudinally striated at the base, more than three times as long as its apical breadth; second tergite twice as long as its apical breadth; apical tergites shining, minutely punctured. Neuration not differing from typical *Œdemopsis*.

♂. Antennæ a little longer than the whole insect, with two or three more joints than in the female, and without a white ring. First tergite more coarsely striated than in the female. Clypeus nearly flat, as long as the face, not divided by a carina.

Hab. Eaglehawk Neck, S.E. Tasmania, February 1913 (*Turner*); 1 ♀. Mt. Wellington, Tasmania, March 12–21, 1913 (*Turner*); 2 ♂ ♂.

This is the first record of this small genus from the Australian region. I follow Thomson in placing the genus in the Tryphoninæ, though some authors consider that it is better placed among the Pimplinæ. Morley's amendment of the generic name to *Œdematopsis* appears to me unnecessary.

VII.—*Notes on Fossorial Hymenoptera.*—XXXVIII. *On new Ethiopian Species.* By Rowland E. Turner, F.Z.S., F.E.S.

Family **Scoliidæ**.

Subfamily *Elidinæ*.

Elis (*Mesa*) *fusiformis*, sp. n.

♂. Niger; mandibulis apice fusco-ferrugineis; segmento abdominali septimo, tergitoque sexto apice ferrugineis; femoribus, tibiis tarsisque brunneo-ferrugineis; tergitis 2–5 fascia apicali bisinuata, sternitisque 2–4 macula parva apicali utrinque sordide luteis; alis hyalinis, venis fuscis.

Long. 10 mm.

♂. Clypeus short and broad, very broadly rounded at the apex, closely punctured-rugulose and clothed with whitish hairs. Head closely and strongly punctured, the front rugose, interantennal prominence strongly raised, broad and emarginate at the apex. Antennæ moderately stout, about 7 mm. in length, third and fourth joints of the flagellum subequal, each at least half as long again as the second, the first almost concealed, the four subapical joints feebly arcuate beneath. Eyes shallowly emarginate on the middle of the inner margin. Thorax closely and not very coarsely punctured; pronotum as long as the scutellum, feebly narrowed anteriorly. Median segment very closely and rather strongly punctured-rugose, the whole thorax and median segment clothed with whitish hairs, very sparsely on the dorsal surface, more closely on the sides. Abdomen shallowly, but not very finely punctured; the petiole of the first segment half as long as its strongly broadened apical portion, second segment as long as the first without the petiole, nearly twice as broad at the apex as at the base, the third segment the broadest. Seventh tergite longitudinally striated, the apex smooth, with a deep but very narrow apical slit; hypopygium forming the usual recurved aculeus, but shorter than in most species of the genus. Hind tibiæ serrate. Third abscissa of the radius a little longer than the second, much longer than the fourth.

Hab. Kraaifontein, Cape Colony (*Lightfoot*).

Type in the South African Museum.

A rather aberrant species in the fusiform shape of the abdomen, and in the sculpture and apical slit of the seventh tergite.

Family **Sphegidæ**.

Subfamily *Ampulicinæ*.

Ampulex toroensis, sp. n.

♀. Viridi-cærulea; mandibulis, palpis, flagello articulis 3–11, secundoque apice, tarsisque articulis duobus apicalibus nigris; alis fusco-hyalinis, fusco obscure bifasciatis.

♂. Feminæ similis, antennis tarsisque omnino nigris.

Long., ♀ 20 mm., ♂ 13 mm.

♀. Carina of the clypeus produced into a short blunt tooth at the apex, with a blunt tooth on each side. Head produced and strongly narrowed behind the eyes; the frontal carinæ prominent, not nearly reaching the level of the anterior ocellus; vertex coarsely punctured, with distinct transverse

striæ posteriorly; front rather less coarsely punctured, the area between the frontal carinæ with a tendency to oblique striation. Second joint of the flagellum twice as long as the third, the latter less than three times as long as its apical breadth. Eyes strongly convergent towards the vertex, where they are separated by a distance equal to about three-quarters of the length of the second joint of the flagellum. Pronotum nearly as broad in the middle as long, produced posteriorly into a strong tubercle, transversely striated in the middle, smooth at the base and apex, not punctured, propleuræ smooth. Mesonotum sparsely, scutellum very sparsely, mesopleuræ rather more closely punctured, the scutellum with the usual transverse crenulated groove at the base. Median segment transversely striated, the second carina nearly twice as far from the median carina as from the third at the base, the apical area of the dorsal surface not well defined, the teeth at the apical angles strong and subtriangular. Abdomen smooth and shining, second tergite as long as its greatest breadth. Fourth tarsal joint half as long as the fifth and fully as long as the third in the middle; hind tibiæ very sparsely punctured. Fourth abscissa of the radius about half as long as the second transverse cubital nervure, first transverse cubital nervure indicated, but subobsolete.

♂. Clypeus broadly rounded at the apex, without teeth, and rather densely clothed with grey hairs. Head coarsely punctured, the frontal carinæ produced posteriorly and meeting behind the anterior ocellus, the space between them with distinct oblique striæ and a median longitudinal carina. Second joint of flagellum more than half as long again as the third; eyes less strongly convergent towards the vertex than in the female, separated by a distance scarcely less than the length of the second joint of the flagellum. Thorax rather more closely punctured than in the female, the pronotum with distinct punctures. Abdomen closely and strongly punctured; the third tergite sparsely clothed with cinereous hairs.

Hab. Fort Portal Road, Mbarara, Southern Toro, Uganda Protectorate, 2800–4200 ft., October 22–24, 1911 (*S. A. Neave*); 1 ♀. Tigger, Uganda, October 3, 1901 (*C. S. Betton*); 1 ♂.

Somewhat resembles *A. crawshayi*, Turn., but in that species (♀) the mandibles are red, the wings almost hyaline, the head not produced posteriorly and scarcely narrowed behind the eyes; the frontal carinæ meet behind the anterior ocellus, and the front tarsal joint is shorter, in addition to other differences. The female is the type.

Type in British Museum.

Ampulex cyanura, Kohl.

Ampulex cyanura, Kohl, Ann. naturh. Hofmus. Wien, viii. p. 471 (1893). ♀.
Ampulex africana, Cam. Rec. Albany Mus. i. p. 256 (1905). ♂.

Ampulex nitidicollis, sp. n.

♀. Viridis; mandibulis, flagello articulis 3–11 secundoque dimidio apicali, tarsisque, articulo basali excepto, nigris; alis fusco-hyalinis, fusco obscure bivittatis.
Long. 19 mm.

♀. Clypeus broadly rounded anteriorly, strongly longitudinally carinate in the middle, without lateral teeth. Eyes strongly convergent towards the vertex, where they are separated by a distance scarcely exceeding three-quarters of the length of the second joint of the flagellum. Head not produced behind the eyes and not much narrowed posteriorly, very minutely and closely punctured, with a few larger but shallow scattered punctures; the two frontal carinæ parallel and not nearly reaching the level of the anterior ocellus. Pronotum fully as long as its median breadth, narrowed anteriorly, without striæ, with a few scattered punctures, depressed and subconcave anteriorly, raised and subtuberculate in the middle posteriorly, without a distinct median sulcus. Mesonotum and scutellum very sparsely punctured. Median segment nearly as long as its median breadth, strongly transversely striated, the striæ closer and finer between the second and third lateral carinæ than elsewhere, the second carina at least half as far again from the median at the base as from the third, the three median carinæ not extending to the apex and leaving a well-defined apical area; the teeth at the apical angles of the segment broad and not very long, slightly curved, and not very acute at the apex. Abdomen almost smooth; second tergite fully as long as its greatest breadth, the sides only slightly convex; segments 4–6 rather strongly compressed laterally. Fourth joint of the hind tarsi less than half as long as the fifth and much shorter than the third; hind tibiæ very sparsely punctured on the outer side. Fourth abscissa of the radius scarcely half as long as the second transverse cubital nervure; first transverse cubital nervure present, but not quite as strong as the second.

Hab. Damba Island, Victoria Nyanza; October 8, 1918 (*C. G. Gowdey*).

Type in British Museum.

In many points this resembles *A. splendidula*, Kohl, but

the eyes are much closer together on the vertex than described in that species, the fourth joint of the hind tarsi is shorter, and there are no lateral teeth on the clypeus. The sculpture, however, seems to be very similar.

Subfamily *Sphecinæ.*

Sphex (*Coloptera*) *crassifemoralis*, sp. n.

♂. Nigra; mandibulis, apice excepto, flagello articulis sex basalibus, pronoto lateribus, callis humeralibus, tegulis, mesonoto utrinque ante tegulas, petiolo subtus, sternitis, in medio nigro-suffusis, tergito septimo, pedibusque ferrugineis; femoribus, trochanteribus intermediis posticisque coxisque posticis, supra nigris; tibiis posticis supra nigrolineatis; alis sordide flavo-hyalinis, apice leviter infumatis, venis ferrugineis; pronoto mesonotoque fortiter transverse striatis; scutello postscutelloque fortiter longitudinaliter striatis, convexis, haud lamellato-productis; tergito septimo apice late truncato.

Long. 22 mm.

♂. Clypeus broadly truncate at the apex, broader than long. Eyes distinctly, but not very strongly convergent towards the clypeus; posterior ocelli nearly half as far again from the eyes as from each other, and twice as far from the hind margin of the head as from each other. Head strongly narrowed behind the eyes, the clypeus and front densely clothed with pale golden pubescence. Propleuræ coarsely rugulose; mesopleuræ and sides of median segment irregularly obliquely striated, coarsely punctured between the striæ; a broad band of pale golden pubescence on the mesopleuræ behind, a patch of the same below the humeral calli, and a patch on each side of the median segment at the apex. Dorsal surface of the median segment coarsely obliquely striate-reticulate. First joint of petiole a little shorter than the hind femur and trochanter combined; second tergite subtriangular, a little longer than its apical breadth. Hind femur stout and massive as compared with the allied species; pulvillus large.

Hab. Southern slopes of Mt. Elgon, 5100 to 5800 ft. (*S. A. Neave*), June 8–13, 1911; Valley of Nzoia River, N. Kavirondo, 5100–5400 ft. (*S. A. Neave*), June 5–7, 1911.

Nearly allied to *S. saussurei*, Buyss., and *S. tuberculiscutis*, Turn., but is a more robust species, and differs in the simple scutellum and postscutellum, which are produced in a lamelliform manner in the two species mentioned. The clypeus is very different to that of *tuberculiscutis* ♂, also the pronotum, and the petiole is shorter.

Type in British Museum.

Subfamily *Philanthinæ.*

Cerceris representans, sp. n.

♀. Nigra; mandibulis, apice excepto, clypeo, facie lateribus latissime, carina interantennali, orbitis externis fascia angusta ad marginem posteriorem capitis late producta, pronoto fascia interrupta, tegulis, scutello macula magna utrinque, postscutello, segmento mediano macula maxima utrinque, tergito primo macula magna utrinque, tergitis 2–5 fascia lata antice emarginata, coxis posticis supra, trochanteribus posticis, femoribus tibiisque subtus flavis; antennis, dimidio apicali supra infuscatis, femoribus tibiisque supra tarsisque ferrugineo-testaceis; area pygidiali ferruginea; sternitis 2–5 utrinque macula magna flava, quinto sextoque testaceis; alis subhyalinis, apice leviter infumatis, venis ferrugineis.

Long. 13 mm.

♀. Mandibles with a large triangular tooth on the middle of the inner margin, blunt at the apex. Clypeus with a porrect lamella, which is free from the base, gradually narrowed towards the truncate apex and nearly twice as long as the apical breadth; the portion of the clypeus below the lamella short and transverse at the apex. Antennæ inserted about four times as far from the anterior ocellus as from the base of the clypeus, interantennal carina well developed, second joint of the flagellum half as long again as the third. Head large, broader than the thorax, closely punctured, the front with a tendency to longitudinal striation. Mesonotum and scutellum irregularly longitudinally striate, punctured between the striæ; mesopleuræ closely punctured, not tuberculate. Median segment closely punctured; the basal area more or less strongly obliquely striated, with a low longitudinal carina in the middle. First tergite broader than long, second sternite without an elevated basal area; all the tergites sparsely punctured, the sternites more finely punctured; pygidial area granulate, almost parallel-sided, only a little narrowed at the base, nearly three times as long as the greatest breadth.

Hab. Masai Reserve, British East Africa, May 20, 1913 (*T. J. Anderson*). 2 ♀ ♀.

In colouring this approaches the European *C. ferreri*, Lind., but is easily distinguished by the straight apex of the lamella of the clypeus, the sparse sculpture of the abdomen, the shape of the pygidial area, and the yellow spots on the scutellum. It is not at all nearly related to any of the Ethiopian species of this group described by Dr. Brauns.

Cerceris barbifera, Bisch.

Cerceris barbifera, Bisch. Deutsch. Zentr. Afrik. Exp. iii., Zool. i. p. 222 (1911). ♀.

? *Cerceris bagandarum*, Turn. Ann. & Mag. Nat. Hist. (9) ii. p. 465 (1918). ♂ ♀.

I think these are identical, but the median lobe of the clypeus in *bagandarum* is much broader and shorter than in Bischoff's figure, which also omits the large triangular tooth on the inner side of the mandibles. These differences may be due to inaccuracies in the figure, as otherwise the description of *barbifera* agrees well with *bagandarum*. As I have previously suggested, I look on this and also on *C. sodalis*, Turn., as subspecies of *C. diodonta*, Schlett.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

December 18th, 1918.—Mr. G. W. Lamplugh, F.R.S., President, in the Chair.

The following communication was read:—

'On a Bed of Interglacial Loess and some Pre-Glacial Freshwater Clays on the Durham Coast.' By Charles Taylor Trechmann, D.Sc., F.G.S.

A few years ago the Author described a bed of Scandinavian drift that was found filling up a small pre-Glacial valley-like depression at Warren-House Gill on the Durham coast. This section and others north and south of it have been kept under observation at different times, and several new features have been noticed as the high tides and other agencies exposed parts of the coast.

Towards the southern end of the old pre-Glacial valley at Warren-House Gill a bed of material, varying from 4 to 12 feet in thickness, was found overlying the Magnesian Limestone and also the Scandinavian drift. This material has been carefully examined chemically and microscopically, and proves to be identical in chemical and physical characters with a sample of the true Continental loess. It is light brown or fawn in colour, very porous and extremely finely divided, and is devoid of plasticity. Towards the base, where it has not been disturbed since it was laid down, it contains a number of rounded and elongated, often very hard, calcareous concretions. In the cliff-section it shows little or no trace of bedding, but tends to break down along vertical clefts and cracks. It passes upwards into a few feet of material that consists of loess which has been partly redeposited by water, and is mixed with sand, gravel, and other material derived from the Scandinavian drift.

The bed of loess and redeposited loess-like drift has suffered